

AMENDMENTS TO THE CLAIMS

The following is a list of all active claims in the application along with the status of each as of the filing of this Amendment D. Claim 5 was canceled. Dependent Claim 56 and independent Claim 57 were added.

1. **(Currently Amended)** An apparatus for simulating human blood pressure cycles and providing a tactile interface comprising:
an element to generate pressurized fluid;
a pressure vessel containing the pressurized fluid whereby a human can sense, through touch, pressure amplitudes within the pressure vessel;
a pressure control element to control pressure levels within the pressure vessel; and
an electronic control unit to interface with the fluid pressure control element to maintain periodic, simulated diastolic and systolic blood pressure levels within the pressure vessel.
2. **(Original)** The apparatus of claim 1 wherein the fluid is a gas.
3. **(Original)** The apparatus of claim 1 wherein the fluid is a substantially segregated mixture of gas and liquid.
4. **(Original)** The apparatus of claim 1 wherein the pressure vessel containing the pressurized fluid further includes at least one moveable surface.
5. **(Cancel)**

6. (Original) The apparatus of claim 1 further comprising at least one pressure sensor to determine the pressure level within the pressure vessel.
7. (Original) The apparatus of claim 1 wherein the fluid pressure control element comprises an electromechanically actuated pressure regulator.
8. (Original) The apparatus of claim 1 wherein the fluid pressure control element comprises an electric solenoid controlled valve system.
9. (Original) The apparatus of claim 1 wherein the element to generate pressurized fluid is at least one electric powered pump.
10. (Original) The apparatus of claim 1 wherein the pressure vessel comprises an elastomeric, hollow bulb that can be held in a human hand and internal pressure amplitudes of fluid within the bulb are sensed by human touch.
11. (Original) The apparatus in claim 10 further comprising an incompressible member positioned within the elastomeric hollow bulb such that substantial portions of the internal surfaces of the bulb are held in contact with the incompressible member by manually squeezing the bulb.
12. (Canceled)

13. **(Currently Amended)** The apparatus of claim 1 wherein the pressure vessel comprises an inflatable cuff whereby the periodic, simulated blood pressure levels inside the cuff ~~is~~are sensed by human touch.
14. **(Currently Amended)** The apparatus of claim 1 wherein the pressure vessel is comprised of an elastic walled, closed tube whereby the periodic, simulated blood pressure levels inside the tube ~~is~~are sensed by human touch. gripping of the tube.
15. **(Original)** The apparatus of claim 1 further comprising at least one user operable control to select minimum and maximum limits of pressures within the pressure vessel to simulate diastolic and systolic blood pressure levels.
16. **(Currently Amended)** The apparatus of claim 1 further comprising at least one user operable control to ~~select~~ set a simulated cardiac pulse rate for the simulated human blood pressure cycles, periodicity.
17. **(Original)** The apparatus of claim 1 further comprising an electronic interface circuit to connect with an electronic sphygmomanometer to receive diastolic and systolic blood pressure level data and pulse rate data as measured by the electronic sphygmomanometer.

18. (Original) The apparatus in claim 17 whereby at least the diastolic and systolic blood pressure level data are used to set a minimum amplitude and maximum amplitude, respectively, of cyclic pressure levels within the pressure vessel.
19. (Currently Amended) An apparatus for simulating normal and abnormal human blood pressure and providing a tactile interface comprising:
an element to generate pressurized fluid;
a pressure vessel containing the pressurized fluid having at least one moveable surface whereby a human can sense, through touch, periodic pressure amplitudes within the pressure vessel;
the periodic pressure amplitudes comprising at least one normal human blood pressure amplitude and at least one abnormal human blood pressure amplitude in the pressure vessel; and
a visual indicator to display indicia which specify pressure amplitudes within the pressure vessel.
20. (Original) The apparatus of claim 19 wherein the fluid is a gas.
21. (Original) The apparatus of claim 19 wherein the fluid is a substantially segregated mixture of gas and liquid.
22. (Original) The apparatus of claim 19 wherein the element to generate pressurized fluid is at least one manually operated pump.

23. **(Original)** The apparatus of claim 19 wherein the pressure vessel comprises an elastomeric, hollow bulb that can be held in a human hand and internal pressure amplitudes of fluid within the bulb are sensed by human touch.
24. **(Canceled)**
25. **(Currently Amended)** The apparatus of claim 19 wherein the pressure vessel comprises an inflatable cuff whereby the pressure amplitude inside the cuff is sensed by human touch.
26. **(Currently Amended)** The apparatus of claim 19 wherein the pressure vessel comprises an elastic walled, closed tube whereby the pressure amplitude inside the tube is sensed by human touch.
27. **(Original)** The apparatus of claim 19 whereby the visual indicator comprises an electronic digital display.
28. **(Original)** The apparatus of claim 19 whereby the visual indicator comprises an analog pressure gauge.
29. **(Currently Amended)** An apparatus for simulating human blood pressure cycles comprising:

~~a means~~ an element to generate pressurized fluid;

a vessel containing the pressurized fluid having at least one moveable surface whereby a human can sense, through touch, periodic pressure magnitudes of the pressurized fluid acting upon the moveable surface;

the periodic pressure magnitudes comprising at least one of a human diastolic and a human systolic pressure level; and

a pressure control element ~~means~~ to control pressure levels within the vessel.

30. (Original) The apparatus of claim 29 wherein the fluid is a gas.

31. (Original) The apparatus of claim 29 wherein the fluid is a substantially segregated mixture of gas and liquid.

32. (Original) The apparatus of claim 29 whereby the means to generate pressurized fluid includes at least one electric pump.

33. (Original) The apparatus of claim 29 whereby the means to generate pressurized fluid is at least one manually operated pump.

34. (Original) The apparatus of claim 29 further comprising a visual pressure level indicator including an electronic digital display.

35. (Original) The apparatus of claim 29 further comprising a visual pressure level indicator including an analog display.
36. (Currently Amended) A method for conveying by touch, to a human subject, the a level of pressure within a pressurized vessel comprising:
generating pressurized fluid;
regulating periodic pressure levels of the pressurized fluid within the pressurized vessel indicative of a simulated human blood pressure cycle[;] whereby at least one pressure level comprises at least one human blood pressure level; and
containing the pressurized fluid in the pressurized vessel whereby a human subject can sense the pressure levels ~~magnitude~~ of the pressurized fluid therein by touching of the pressurized vessel.
37. (Original) The method of claim 36 wherein the fluid is a gas.
38. (Original) The method of claim 36 wherein the fluid is a substantially segregated mixture of gas and liquid.
39. (Currently Amended) An apparatus for simulating human blood pressure cycles comprising:
a device to generate pressurized fluid;
a chamber containing the pressurized fluid having a distendable surface through which a human can sense, through touch, fluid pressure amplitudes within the chamber;

a fluid pressure control element to control pressure levels amplitudes within the chamber; and

an electronic control unit to interface with the fluid pressure control element to maintain periodic, simulated diastolic and systolic blood pressure levels amplitudes within the chamber.

40. (Original) The apparatus of claim 39 wherein the fluid is a gas.

41. (Original) The apparatus of claim 39 wherein the fluid is a substantially segregated mixture of gas and liquid.

42. (Currently Amended) An apparatus for simulating human blood pressure and providing a tactile interface comprising:

a first elastomeric hollow bulb to pressurize fluid by manual compression of the bulb;

a second elastomeric hollow bulb pneumatically connected to the first elastomeric hollow bulb such that the pressure in the second bulb is controlled by the amount of manual compression of the first bulb;

the second elastomeric hollow bulb providing a tactile interface to a human subject whereby the human subject can physically sense fluid pressure magnitudes internal to the second bulb by gripping the second bulb with at least one hand; and

a visual indicator to display indicia which specifies pressure magnitudes within the second elastomeric hollow bulb.

43. (Previously Amended) The apparatus in claim 42 further comprising an incompressible, non-liquid member positioned within the second elastomeric hollow bulb such that substantial portions of the internal surfaces of the bulb are held in contact with the member.
44. (Previously Presented) The apparatus of claim 19 further comprising at least one user-operated control to set pressure excursion parameters within the pressure vessel.
45. (Previously Presented) The apparatus of claim 44 wherein the pressure excursion parameters are selected from the group consisting of simulated pulse rate, simulated diastolic pressure level, and simulated systolic pressure level.
46. (Previously Presented) The apparatus of claim 29 further comprising at least one user-operated control to set pressure excursion parameters within the pressure vessel.
47. (Previously Presented) The apparatus of claim 46 wherein the pressure excursion parameters are selected from the group consisting of simulated pulse rate, simulated diastolic pressure level, and simulated systolic pressure level.
48. (Previously Presented) The apparatus of claim 39 further comprising at least one user-operated control to set pressure excursion parameters within the pressure vessel.

49. (Previously Presented) The apparatus of claim 48 wherein the pressure excursion parameters are selected from the group consisting of simulated pulse rate, simulated diastolic pressure level, and simulated systolic pressure level.
50. (Currently Amended) The apparatus of claim 1 ~~wherein the electronic control unit~~ further ~~comprises~~ comprising at least one a user-operated control to switch at least the simulated systolic blood pressure level between normal and abnormal values.
51. (Currently Amended) The apparatus of claim 29 further comprising a ~~wherein the control means to control pressure level within the vessel further comprises at least one~~ user-operated control to switch at least the ~~simulated~~ human systolic blood pressure level between normal and abnormal values.
52. (Previously Presented) The method of claim 36 further comprising switching between normal and abnormal simulated blood pressure cycles.
53. (Currently Amended) The apparatus of claim 39 ~~wherein the electronic control unit~~ further ~~comprises~~ comprising at least one a user-operated control to switch at least the simulated systolic blood pressure level between normal and abnormal values.
54. (Currently Amended) The apparatus of claim 19 ~~wherein the electronic control unit~~ further ~~comprises~~ comprising at least one a user-operated control to switch ~~at least the simulated systolic blood pressure~~ amplitudes level between normal and abnormal values.

55. (Previously Presented) The apparatus in claim 23 further comprising an incompressible, non-liquid member positioned within the elastomeric hollow bulb such that substantial portions of the internal surfaces of the bulb are held in contact with the member.

56. (New) The method of Claim 36 further comprising:
indicating, on a visual display, the pressure level of the pressurized fluid.

57. (New) An apparatus for simulating human blood pressure and providing a tactile interface comprising:
an element to generate pressurized fluid;
an elastomeric hollow bulb containing the pressurized fluid whereby a human can physically feel, by gripping the bulb, a pressure level within the bulb; and
a device to control the pressure level within the bulb to simulate at least one of a normal and an abnormal human blood pressure level within the bulb.